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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,775	12/02/2003	Cheng-Yin Lee	ALC 3100	1920

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EXAMINER	
MILLS, DONALD L	

ART UNIT	PAPER NUMBER
2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/724,775	LEE, CHENG-YIN	
	Examiner	Art Unit	
	DONALD L. MILLS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) *19-37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/06/2005 and 07/25/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Sing et al. (US 2003/0088698 A1), hereinafter referred to as Singh.

Regarding claims 1, 9, and 15, Singh discloses a VPN failure recovery for rapid failover of a communication path between computers that are linked by redundant virtual links in a virtual private network, which comprises:

A first hub node serving client equipment (CE) devices connected on a first ELAN, a spoke node serving CE devices on a second ELAN; a first point-to-point link L1 for interconnecting said first hub node and said spoke node; and a second hub node interconnected with said first hub node, wherein whenever said first link L1 fails, said second hub node establishes communication with said spoke node over a second point-to-point link L2 (Referring to Figures 1 and 2, Communication between clients 110 (client equipment) and servers 160 passes through public network 130 over virtual links of a virtual private network (VPN) (ELAN). At the site of each client 110, an access device 120 is coupled on the communication path between client 110 and public network 130 (second ELAN). Each access device 120 establishes

VPN tunnels 135 to two or more gateways 140 (first hub node and second hub node). Each tunnel makes use of the IPSec protocol to transport and encrypt packets passing between access devices 120 and gateways 140. Each IPSec tunnel carries a PPP (Point-to-Point Protocol) data stream that is transported using a GRE (Generic Routing and Encapsulation) protocol. In this way, each tunnel provides a virtual link between the access device 120 and the gateway 140 at its endpoints. Different tunneling protocols, such as native IPSec tunneling, or L2TP or PPTP based tunnels are used to link the access devices and the gateways, and combinations of different tunneling protocols are used to link different clients to the servers. See paragraph 0055. Following link failures, communication from the tunnel 135 linking access device 120A and primary gateway 140A to the tunnel 135 linking access device 120A and backup gateway 140B. For example, if client 110A had active transport layer sessions with both server 160A and 160B (illustrated as paths 210), then after the failover, these transport sessions follow paths through backup gateway 140B). See paragraph 0059.)

Regarding claims 2 and 13, Singh discloses *wherein said second hub node operates as a spoke node of first said hub node under normal operation conditions* (Referring to Figures 1 and 2, following link failures, communication from the tunnel 135 linking access device 120A and primary gateway 140A to the tunnel 135 linking access device 120A and backup gateway 140B (which operates as a node of the primary gateway under normal conditions). For example, if client 110A had active transport layer sessions with both server 160A and 160B (illustrated as paths 210), then after the failover, these transport sessions follow paths through backup gateway 140B). See paragraph 0059.)

Regarding claims 3 and 14, Singh discloses *wherein said first hub node operates as a spoke node of said second hub node when said first hub node fails* (Referring to Figures 1 and 2, following link failures, communication from the tunnel 135 linking access device 120A and primary gateway 140A (which operates as a node of the backup gateway when the primary gateway fails) to the tunnel 135 linking access device 120A and backup gateway 140B. For example, if client 110A had active transport layer sessions with both server 160A and 160B (illustrated as paths 210), then after the failover, these transport sessions follow paths through backup gateway 140B). See paragraph 0059.)

Regarding claims 4 and 12, Singh discloses *wherein a first PE node interfacing said first hub with said service provider network monitors said first link L1 for detecting a failure at said hub node* (Referring to Figures 1-3, Each access device 120 (PE node) has a similar logical arrangement as that shown for gateway 140 in FIG. 3. A heartbeat module in an access device sends heartbeats to the gateways 140 to which it has tunnels. If the primary gateways fails to respond (layer 1 signaling protocol), the access device terminates the tunnel and the router module immediately starts passing packets from client 110 over a tunnel 135 to a backup gateway 135. The tunnel module then begins and continues to try to reestablish a tunnel to the primary gateway. The router module at the access device sends a request to the router module at the backup gateway to send updated routing information rather than waiting to periodic routing updates it would send as part of normal operation of the route update protocol. See paragraph 0064.)

Regarding claims 5, 10, and 11, Singh discloses *wherein in case of a failure at said first hub node, said first PE node signals to a third PE node interfacing said spoke node with said*

service provider network to establish a second point-to-point link with said second hub node, and to re-map the traffic from said second hub node over said second point-to-point link (Referring to Figures 1-3 and 5C, a heartbeat failure from an access device 120 to a gateway 140 results in the following sequence of events. Access device 120 detects a heartbeat failure. The access device terminates the tunnel if it has not already been terminated (for example by the gateway under the scenario shown in FIG. 5B). At each access device 120 that has had the tunnel to its primary gateway terminated, the router module begins rerouting traffic to the backup gateway. The access device also request updated routing information from the backup gateway. The backup gateway sends the updated routing information in response to the request from the access device. After any tunnel to an access device is terminated, the access device begins to try to reestablish the tunnel. However, the gateway that terminated the tunnel does not accept the requests to reestablish the tunnels until it is one again successfully receiving replies to the heartbeat messages it is sending to servers 160. In various examples of this approach, private network 150 can include a variety of different types of routing "fabrics." For example, private network 150 can be configured to be statically routed or to use a dynamic routing protocol such as OSPF. See paragraphs 0078-0082.)

Regarding claims 6 and 16, Singh discloses *wherein the access link between said spoke node and said third PE node is an aggregated bundle of links comprising a redundant link* (Referring to Figures 1-3 and 5C, a heartbeat failure from an access device 120 to a gateway 140 results in the following sequence of events. Access device 120 detects a heartbeat failure. The access device terminates the tunnel if it has not already been terminated (for example by the gateway under the scenario shown in FIG. 5B). At each access device 120 that has had the

tunnel to its primary gateway terminated, the router module begins rerouting traffic to the backup gateway. The access device also request updated routing information from the backup gateway. The backup gateway sends the updated routing information in response to the request from the access device. After any tunnel to an access device is terminated, the access device begins to try to reestablish the tunnel (aggregated bundle of links comprising a redundant link). See paragraphs 0078-0082.)

Regarding claims 7 and 17, Singh discloses *wherein connectivity between said third PE node and said spoke node is maintained when a link on said respective aggregated bundle is interrupted* (Referring to Figures 1-3 and 5C, a heartbeat failure from an access device 120 to a gateway 140 results in the following sequence of events. Access device 120 detects a heartbeat failure. The access device terminates the tunnel if it has not already been terminated (for example by the gateway under the scenario shown in FIG. 5B). At each access device 120 that has had the tunnel to its primary gateway terminated, the router module begins rerouting traffic to the backup gateway. The access device also request updated routing information from the backup gateway. The backup gateway sends the updated routing information in response to the request from the access device. After any tunnel to an access device is terminated, the access device begins to try to reestablish the tunnel (connectivity is maintained when a link of the respective bundle is interrupted). See paragraphs 0078-0082.)

Regarding claims 8 and 18, Singh discloses *wherein the loss of a link in said aggregated bundle is transparent to said spoke node* (Referring to Figures 1-3 and 5C, a heartbeat failure from an access device 120 to a gateway 140 results in the following sequence of events. Access device 120 detects a heartbeat failure. The access device terminates the tunnel if it has not

already been terminated (for example by the gateway under the scenario shown in FIG. 5B). At each access device 120 that has had the tunnel to its primary gateway terminated, the router module begins rerouting traffic to the backup gateway. The access device also request updated routing information from the backup gateway. The backup gateway sends the updated routing information in response to the request from the access device. After any tunnel to an access device is terminated, the access device begins to try to reestablish the tunnel (the loss of a link is transparent because the path is rerouted and service is not interrupted). See paragraphs 0078-0082.)

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. MILLS whose telephone number is (571)272-3094. The examiner can normally be reached on 9:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Donald L Mills/
Primary Examiner, Art Unit 2416